

Remarks

For the Claims:

Applicants submitted claims 1-31. In a first Office Action, mailed 3 May 2007, claims 1, 3, 4, 7-10, 14-23, and 27-29 were rejected, and claims 2, 5, 6, 11-13, 24-26, 30, and 31 were objected to as being dependent upon rejected base claims. In an Amendment, dated 2 August 2007, Applicants canceled claims 2, 16-23, and 27-31, amended claims 1, 5, 6, 11, 12, 24, 25, and 26, and retained claims 3, 4, 7-10, and 13-15 as originally submitted. In particular, claim 1 was amended to include the limitations of objected to claim 2. In addition, each of objected to claims 5, 6, 11, and 12 were amended to independent form as suggested in the first Office Action. Following submission of the 2 August 2007 Amendment, claims 1, 3-15, and 24-26 are pending in this application. This Office Action now rejects claims 1, 3-15, and 24-26. Applicants retain claims 1, 3-15, and 24-26 as originally or previously submitted. Applicants respectfully request reconsideration in view of the following remarks.

This Office Action rejects claims 1, 3-7, 9-15, and 24-26 under 35 U.S.C. 103(a) as being unpatentable over Irvine et al., U.S. Publication No. 2002/0191695 (hereinafter Irvine), in view of Wu et al., U.S. Patent No. 7,016,337 (hereinafter Wu). Irvine teaches a method of interframe coding in a system for encoding digital video. Wu teaches of methods and apparatus for statistical re-multiplexing of multiple channels.

Regarding independent claim 1, the Office Action alleges that Irvine discloses the subject matter of claim 1 except for specifically teaching distributing the coded quadtree coefficient

groups among the multiple channels for transmission. The Office Action further alleges that Wu teaches distributing the coded quadtree coefficient groups among the multiple channels for transmission and cites FIG. 5B and the Abstract as evidence for such a teaching. The Office Action concludes that it would have been obvious to use a plurality of traffic channels for video transmission as taught by Wu in the system of Irvine to improve the quality of service and transmit the video signal with less error rate.

The Office Action cites passages in the Irvine reference at paragraph [0028], lines 1-8, and paragraph [0029], lines 1-20 in association with Applicants' feature of claim 1 of distributing said coded quadtree coefficient groups among said multiple channels for transmission, said distributing operation including assigning said coded quadtree coefficient groups to said multiple channels such that contiguous portions of said frame data will be transmitted over different ones of said multiple channels. The cited passages within Irvine disclose little more than compressing a video signal by subdividing a 16x16 block of pixels into smaller blocks in a quad-tree fashion. The compressed video signal is subsequently transmitted or conveyed through a physical medium, through a transmission channel.

The Office Action further cites FIG. 5B and the Abstract of the Wu reference as an alleged teaching of Applicants' distributing operation of independent claim 1. Applicants respectfully disagree with the Office Action allegation that Wu teaches distributing the coded quadtree coefficient groups, or compressed video in any form, among multiple channels for transmission, as recited in claim 1. Indeed, the Office Action citations from Wu teach the opposite.

Referring first to the Abstract, the Wu Abstract expressly discloses the re-multiplexing of multiple channels, and mechanisms to manipulate and/or recode multiple compressed bit streams such that a resulting bit stream has a rate matching based upon the allowable output channel rate. It is notoriously well known that the term "multiplexing" is used to refer to a process where multiple signals are combined into one signal. The prefix "re-" signifies "again" or "anew." Without more, the term "re-multiplexing" can be thought of as multiplexing again. Obviously, multiplexing or combining signals into one signal is not synonymous with the operation of distributing said coded quadtree coefficient groups among said multiple channels for transmission, as recited in claim 1.

Referring now to FIG. 5B and the associated text at col. 7, line 21, through col. 8, line 42, of the Wu reference, Wu discloses a transmission system 500 that includes a device 503 for upstream multiplexing, a transport medium 506, a head end 558, a network 562, and receivers 564. Raw video data is received from one or more sources and is provided to the re-multiplexing system 503. The system 503 includes a plurality of video channels, video encoders, and a re-multiplexer 504. Each channel provides a non-compressed stream of video sequences that is input to a respective video encoder. Each encoder compresses the video sequences to produce a compressed bit stream. The re-multiplexer 504 has a plurality of inputs for receiving the compressed video sequences and for combining the input compressed channels into a single output bit stream provided at its output for transmission over the transport medium 506 (col. 8, lines 16-28).

The Wu passages cited in the Office Action and the illustration in FIG. 5B contradict Applicants' invention of claim 1 of distributing said coded quadtree coefficient groups among

said multiple channels for transmission, said distributing operation including assigning said coded quadtree coefficient groups to said multiple channels such that contiguous portions of said frame data will be transmitted over different ones of said multiple channels.

The passages cited in the Office Action in support of contentions that Wu teaches the feature of distributing the coded quadtree coefficient groups among the multiple channels for transmission are silent as to the claimed feature. Further, Applicants have carefully reviewed the Wu patent and can find no teaching of this claimed feature. Rather, Applicants found disclosure in Wu at col. 1, lines 20-27, and FIG. 5A that there are a variety of different communication channels for transmitting or transporting video data. Wu further mentions that communication channels such as digital subscriber loop access networks, ATM networks, satellite, or wireless digital transmission facilities are well known. Wu further defines a communication channel broadly as being a connection facility to convey properly formatted digital information from one point to another.

A general disclosure of satellite networks and communication channels being a connection facility to convey properly formatted digital information from one point to another does not specify or otherwise imply multiple channels and distributing coded video (e.g., coded quadtree coefficient groups) among the multiple channels for transmission, despite Office Action allegations to the contrary.

Well-established patent practice dictates that the test for obviousness is not whether references may be combined, but rather whether the combined teachings render the claimed subject matter obvious. Irvine and Wu each teach of encoding video for

RESPONSE

SERIAL NO. 10/725,126

Page: 15

transmission. Thus, one might -- in violation of well settled patent law for evaluating claims for obviousness -- postulate that features of Wu may be bodily incorporated into Irvine. Without conceding the propriety of the asserted combination, however, such a hypothetical combination is irrelevant if the combined teachings fail to render Applicants' invention obvious. As stated in In re Wood, 202 USPQ 171, 174 (C.C.P.A. 1979):

The test for obviousness is not whether the feature of one reference may be bodily incorporated into another reference....Rather, we look to see whether combined teachings render the claimed subject matter obvious.

Applicants respectfully submit that even if the teachings of Irvine and Wu were somehow combined, the resulting combination would fail to render obvious Applicants' invention of independent claim 1. Indeed, full and fair consideration of the Irvine and Wu references reveals the fallaciousness of the obviousness rejection set forth in the Office Action. Such an argument is fallacious because, as acknowledged in the Office Action, Irvine fails to disclose the claimed feature of distributing said coded quadtree coefficient groups among said multiple channels for transmission, said distributing operation including assigning said coded quadtree coefficient groups to said multiple channels such that contiguous portions of said frame data will be transmitted over different ones of said multiple channels. Moreover, Wu does not add anything to the disclosure of Irvine that would remedy the aforementioned deficiency. Since the prior art does not teach or suggest that claimed feature, a combination of Irvine and Wu cannot render obvious that which is neither taught nor suggested by the prior art.

For at least the reasons set forth above, the invention of claim 1 is not rendered obvious in view of a combination of Irvine and Wu. As such, claim 1 is believed to be allowable.

RESPONSE

SERIAL NO. 10/725,126

Page: 16

Claims 3, 4, 7-10, 14, and 15 depend directly or indirectly from claim 1. Thus, claims 3, 4, 7-10, 14, and 15 are allowable by reason of dependency. Additionally, at least claims 9, 10, and 15 include limitations that further distinguish Applicants' invention from the prior art.

Claim 9 includes the limitations of assembling the coded quadtree coefficient groups into packets, for each of the packets, assigning one of the multiple channels for transmission of each packet, and forwarding each packet toward the assigned one of the multiple channels. The features of assigning and forwarding recited in claim 9 are not taught nor suggested by the Wu reference for the reasons similar to those discussed in connection with claim 1. Namely, the Wu teaching of a transport medium 506 is not a teaching of multiple channels or of distributing packets of coded quadtree coefficient groups among the multiple channels for transmission. It follows, therefore, that is Wu does not teach the distributing operation of claim 1, then Wu cannot teach or suggest the assigning and forwarding features of claim 9. Thus, a combination of Irvine and Wu does not render obvious Applicants' invention of claim 9.

Claim 10 includes the limitations of assembling the coded quadtree coefficient groups into packets, attaching a packet identifier to each of the packets prior to the distributing operation, receiving the packets at a decoder via the multiple channels, and reconstructing each video frame at the decoder from the received packets in response to the packet identifier. The Office Action alleges that Irvine largely teaches the invention of claim 10 except for specifically teaching receiving the packets at a decoder via the multiple channels. Claim 10 is believed allowable at least for reasons similar to those set forth in connection with claim 1. That is, Wu fails to teach or suggest distributing packets among multiple channels for

RESPONSE

SERIAL NO. 10/725,126

Page: 17

transmission. It follows, therefore, that Wu cannot teach or suggest the claim 10 features of receiving the packets at a decoder via the multiple channels and reconstructing each video frame at the decoder from the received packets in response to the packet identifier. Thus, a combination of Irvine and Wu does not render obvious Applicants' invention of claim 10.

Claim 15 includes limitations directed toward the communication system being a satellite-based communication network and the multiple channels are wireless voice channels managed by the satellite-based communication network. In support of the rejection of claim 15, the Office Action acknowledges that Irvine fails to teach the features of claim 15. However, the Office Action alleges that Wu teaches the features of claim 15 and concludes that it would be obvious to establish transmission links using the satellite and wireless channels as taught by Wu to provide connection and communication links (presumably in the system of Irvine).

The Office Action cites a passage at column 1, lines 20-27, and FIG. 5A in support of this line of reasoning. The cited passage from Wu discloses that there are a variety of different communication channels for transmitting or transporting video data. Wu further mentions that communication channels such as digital subscriber loop access networks, ATM networks, satellite, or wireless digital transmission facilities are well known. Wu further defines a communication channel broadly as being a connection facility to convey properly formatted digital information from one point to another.

The general disclosure of satellite networks and satellite communication channels does not specify or otherwise imply that these communications channels are voice channels. Moreover, the generalized Wu reference to a satellite network and communication

channels to "convey properly formatted digital information from one point to another" in no way teaches or suggests distributing the "properly formatted digital information" among multiple channels for transmission, as recited in claim 1 from which claim 15 depends. As stated in In re Freed, 425 F.2d 785, 165 U.S.P.Q. 570, 571 (C.C.P.A. 1970):

A determination of obviousness must be based on facts and not on unsupported generalities.

In this instance, a determination of obviousness was found by utilizing generalities in the Wu disclosure of a satellite network and communication channels. However, no factual basis exists in the Wu reference for concluding that information, i.e. coded quadtree coefficient groups, is being distributed among the multiple wireless voice channels of the satellite network. Accordingly, the generalized Wu disclosure of a satellite network and communication channels was improper grounds for making a determination of obviousness. Thus, claim 15 is believed to be allowable for at least the aforementioned reasons.

Independent claim 5 includes the limitations of distributing said coded quadtree coefficient groups and said coded motion vector blocks among said multiple channels for transmission, and assigning said coded motion vector blocks to said multiple channels such that adjacent portions of said motion vectors will be transmitted over different ones of said multiple channels. Claim 5 is believed to be allowable for the reasons set forth in connection with claim 1. That is, nothing in either of Irvine or Wu teaches or suggests the claimed featured of distributing said coded quadtree coefficient groups and coded motion vector blocks among said multiple channels for transmission. It follows, therefore, that nothing in either of Irvine or Wu teaches or suggests the claimed feature of assigning said coded motion

vector blocks to the multiple channels such that adjacent portions of the motion vectors will be transmitted over different ones of the multiple channels. Since the prior art does not teach or suggest the claimed features, a combination of Irvine and Wu cannot render obvious that which is neither taught nor suggested by the prior art. Accordingly, claim 5 is believed to be allowable over the cited prior art for at least the aforementioned reasons.

Independent claim 6 includes distributing the coded quadtree coefficient groups and the coded motion vector blocks among the multiple channels for transmission, wherein the coded quadtree coefficient groups are distributed among the multiple channels independent from the coded motion vector blocks. The operation of distributing coded quadtree coefficient groups and the coded motion vector blocks among the multiple channels for transmission is neither taught nor suggested by the prior art alone or in combination. Accordingly, claim 6 is believed to be allowable over the cited prior art for at least the aforementioned reasons.

Independent claim 11 includes distributing the packets of coded quadtree coefficient groups, receiving the packets at a decoder via the multiple channels, and reconstructing each video frame at the decoder from the received packets in response to each packet identifier. Independent claim 11 is believed to be allowable over Irvine and Wu for at least the reasons set forth in connection with claims 1 and 10.

Independent claim 12 includes operations directed toward distributing packets of coded quadtree coefficient groups and packets of coded motion vector blocks among multiple channels for transmission. System claim 24 includes limitations directed toward an output interface for receiving coded quadtree coefficient groups, the output interface assigning the coded

RESPONSE

SERIAL NO. 10/725,126

Page: 20

quadtree coefficient groups to the multiple channels in a communication network such that adjacent portions of the frame data will be transmitted over different ones of the multiple channels and an input interface for receiving transmitted packets of coded quadtree coefficient groups from a second system via the multiple channels. Similarly, system claim 25 includes limitations directed toward an output interface for receiving coded quadtree coefficient groups, the output interface assigning the coded quadtree coefficient groups to the multiple channels in a communication network such that adjacent portions of the frame data will be transmitted over different ones of the multiple channels and an input interface for receiving transmitted first packets of coded quadtree coefficient groups and second packets of motion vector blocks from a second system via the multiple channels.

Independent claims 12, 24, and 25 are believed to be allowable over the prior art for at least the reasons set forth above. That is, nothing in either of Irvine or Wu teaches or suggests the claimed distributing feature (method or system) of distributing the coded quadtree coefficient groups among the multiple channels for transmission, the distributing operation including assigning said coded quadtree coefficient groups to said multiple channels such that contiguous portions of said frame data will be transmitted over different ones of said multiple channels. Since the prior art does not teach or suggest that claimed feature, a combination of Irvine and Wu cannot render obvious that which is neither taught nor suggested by the prior art.

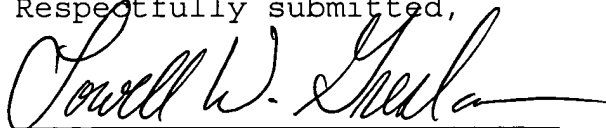
In addition, this Office Action rejects claim 8 as being unpatentable over Irvine, in view of Wu, and further in view of Jacquin et al., U.S. Patent No. 6,625,217 (hereinafter Jacquin). Jacquin teaches a method for optimizing a wavelet packet

structure for subsequent tree-structured coding. The Office Action alleges that a combination of Irvine and Wu largely teaches Applicants' invention with the exception that Irvine fails to specifically teach the coding operation comprises utilizing a zerotree wavelet coding algorithm. The Office Action further alleges that Jacquin teaches the coding operation utilizing a zerotree wavelet coding algorithm and concludes that it would have been obvious to use a zerotree wavelet coding algorithm taught by Wu et al. in the video frame [sic]. Applicants are unsure what is meant by the above allegation since the Office Action further cites Jacquin as including a teaching of utilizing a zerotree wavelet coding algorithm. Nevertheless, claim 8 depends from independent claim 1 and is believed allowable over the prior art for at least the reasons set forth in connection with claim 1.

Accordingly, claims 1, 3-15, and 24-26 remain in the application as originally or previously submitted and are believed to be allowable.

Applicants believe that the foregoing remarks are fully responsive to the rejections recited in the 16 October 2007 Office Action and that the present application is now in a condition for allowance. Accordingly, reconsideration of the present application is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lowell W. Gresham", written over a horizontal line.

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